Amendment to the Claims

Please amend claim 1 and add new claims 2-18 as follows.

1. (Currently Amended) A method for transmitting a message packet from a first node to a second node in a data processing system, said method comprising the steps of:

~~establishing a first~~ <u>determining at least one</u> set of communication ~~parameters~~ <u>descriptors</u> prior to message packet transmission ~~time~~ in a communications adapter connected to a first one of said nodes; <u>and</u>

~~establishing a second set of communication parameters prior to message packet transmission time;~~

<u>assembling said message packet for direct memory to memory transfer from said first node to said second node, said message packet comprising a single message packet comprising data from disparate memory locations in said first node, wherein the communication descriptors determine the disparate memory locations in said first node from which said message packet is assembled</u>

~~wherein said first and second sets of communication parameters are interpreted jointly and wherein together they define disparate areas of memory in said first node from which said message packet is assembled, whereby a single message packet is provided which contains data from disparate memory locations but which still preserves direct memory to memory transfer.~~

2. (New) The method of claim 1, wherein said assembling further comprises preloading data comprising a portion of said single message packet associated with some of the communication descriptors, while others of said communication descriptors are being determined during said preloading.

3. (New) The method of claim 1, further comprising:

providing a plurality of channels comprising paths for communication between said first node and said second node; and

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providing a channel state register associated with and accessible by a task associated with a respective channel.

4. (New) The method of claim 3, further comprising providing a descriptor list of control commands for each channel, such that each channel operates independently from the other channels.

5. (New) The method of claim 3, further comprising converting effective memory addresses within a channel into real memory address values.

6. (New) The method of claim 1, further comprising determining in a push/pull descriptor list where in memory of said first node data is to be obtained, and determining in a target descriptor list where in memory of said second node data is to be sent.

7. (New) The method of claim 1, further comprising determining a master side and a slave side of the data processing system; the master side directly accessing random memory locations independently of the slave side, and the slave side determining a region of memory for accessing externally.

8. (New) The method of claim 1, further comprising providing time of day information for adapter synchronization.

9. (New) The method of claim 1, further comprising providing message packet header information linked to memory locations in said first and second nodes for the memory to memory transfer.

10. (New) A communications system for transmitting a message packet directly from a first node to a second node in a data processing system, comprising:

    a node processor for providing communication descriptors indicating disparate memory locations in which data to be transmitted are stored in said first node; and

    a communications adapter comprising a processing engine for responding to the communication descriptors by assembling, in a single message packet, the data stored in the disparate memory locations in said first node, and transmitting the single message

packet directly from the disparate memory locations in said first node to predetermined memory locations in said second node.

11. (New) The communications system of claim 8, wherein the communications adapter further comprises a preloading processor for preloading data comprising a portion of said single message packet associated with some of the communication descriptors, while the processing engine is determining others of said communication descriptors during said preloading.

12. (New) The communications system of claim 11, further comprising:

a plurality of channels comprising paths for communication between said first node and said second node; and

a channel state register associated with and accessible by a task associated with a respective channel.

13. (New) The communications system of claim 12, wherein each channel comprises a descriptor list of control commands for operating independently from the other channels.

14. (New) The communications system of claim 12, further comprising an address translator for converting effective memory addresses within a channel into real memory address values.

15. (New) The communications system of claim 10, further comprising send-receive software for determining in a push/pull descriptor list where in memory data is to be obtained, and for determining in a target descriptor list where in memory data is to be sent.

16. (New) The communications system of claim 10, further comprising remote read/write software for determining a master side and a slave side; the master side directly accessing random memory locations independently of the slave side, and the slave side determining a region of memory for accessing externally.

17. (New) The communications system of claim 10, wherein the communications adapter further comprises an adapter synchronizer for providing time of day information.

18. (New) The communications system of claim 10, wherein the communications adapter further comprises a formatter for providing message packet header information linked to memory locations in said first and second nodes for the memory to memory transfer.